

Case III. Referred by Dr. Macleish. Small epithelioma in middle of lower lid, situated on top of a cyst. Two treatments, 20 seconds, light pressure, destroyed the growth, but the cyst remained—though apparently beginning to absorb.

Case IV. Plantar wart in man of 25 years. Two large, painful warts were present on examination, one at base of second metatarsal and a second, larger one, on heel in direct line from the first. Had been treated by a chiropodist for five months, with increase in size of lesions and infection resulting. They were both frozen at one treatment, for about 60 seconds, under heavy pressure. Wet boracic acid compresses and elevation of foot were employed for the infection. The smaller lesion healed and crust was shed in 14 days, the larger in 21 days, leaving soft, healthy skin at site of lesions.

Case V. Vascular angioma in baby, aged 11 months. At birth, lesion appeared as reddish spot; at two months of age, grew rapidly. On examination, a lesion was found on abdomen, just below area of spleen, markedly elevated, with uneven papillomatous surface, measuring two by one inches, oval in general outline. The flatter half only of the lesion was frozen 60 seconds, fair pressure. Two days later, the crust was beginning to form and some serous oozing was present, but no infection. A protective dressing was used, under a binder. The crust was shed ten days after freezing. The remainder of lesion was frozen two weeks later, the half first treated having entirely disappeared, except for small patch at one edge.

References.

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2. Krompecher. Der Basalzellen Krebs, Jena, Fischer, 1903.
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THE RELATION OF CERTAIN URINARY FINDINGS TO PROGNOSIS ON PULMONARY TUBERCULOSIS.*

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Definite rules for arriving at a correct prognosis in pulmonary tuberculosis are still lacking. Laboratory methods, so valuable in diagnosis, have hitherto been more or less useless as aids to prognostication. Some eight months ago articles by Weiss,¹ Knock, Heflebower,² Gwender, and Schaffle,³ discussing the prognostic value of Ehrlich's diazo reaction and the so-called urochromogen test with potassium permanganate in the urine of tuberculous subjects came to my attention. Weiss,¹ refers to his earlier writings on this subject dating back to 1906 at which time he observed that death invariably followed the persistent presence of the diazo reaction in the urine of tuberculous subjects.

Early in his observations, Weiss was puzzled by the occasional absence of the diazo reaction in obviously advanced cases and its frequent disappearance just before death. This led him to suspect that the unknown substance upon which the diazo reaction depends was derived from an antecedent which does not give a positive reaction. Upon adding a few drops of 1/1000 solution of potassium permanganate to positive specimens and the diazo reagent combined, he noted that the characteristic red of the diazo reaction became brown; also, when the permanganate solution alone was added to positive specimens a canary yellow color ap-

peared. In addition, the last reaction occurred in specimens which had become negative to the diazo but never appeared in normal urine.

He identified the yellow body as urochrome and felt that by the addition of permanganate he oxidized its antecedent or chromogen. This chromogen does not give a diazo reaction. He therefore called this antecedent substance urochromogen. Thus, the urochromogen test should be positive when the diazo is positive, and by being positive when the diazo is negative, should show the presence of the antecedent of the substance on which both tests depend. Weiss attributes the presence of urochromogen to disintegration of tissue with excretion of incompletely oxidized material in toxic patients of low vitality.

Schaffle³ in January 1914 began to use the diazo and urochromogen tests at the Pennsylvania State Tuberculosis Dispensary. It occurred to him that the low percentage of positive reactions was due to the fact that all of the subjects were ambulant. Further study of specimens from a large number of bed-ridden patients showed positive reactions to be much more numerous. The significant feature which he dwelt upon is the difference in mortality percentage between the positive and negative cases, and particularly the high death rate among those with a negative diazo and a positive urochromogen reaction.

The pavilion for tuberculous patients at the Sacramento County Hospital has an average of from 20 to 30 inmates, nearly all of whom have advanced lesions. This group seemed to offer a good opportunity for checking up the urochromogen and diazo tests clinically and not infrequently pathologically as well. During my service upon the medical side I had occasion to examine 100 patients. At the suggestion of Dr. Gundrum I made notes covering the following points: Occupation duration, extent of involvement, appetite, nourishment, color of mucous membranes, temperature, cough, sputum, complications, clinical prognosis, (made from the physical examination, etc.), potassium permanganate or urochromogen test, diazo reaction, and finally deaths during the six months' period.

In making the so-called urochromogen test the technic of Weiss was used. This requires a small amount of fresh urine diluted with three parts of water, the mixture is thoroughly shaken up and divided into two equal portions in test tubes. To one of these portions three drops of potassium permanganate solution is added, the other tube being used as a control. Many specimens were turbid and of various shades of amber, but the turbidity and original color seemed to have little effect upon the reaction. I recognized as a positive only a distinctly canary yellow which disappeared rather slowly upon standing. A diazo was done upon each specimen.

In 100 successive admissions of patients suffering from pulmonary tuberculosis only 14 could be given a favorable clinical prognosis. In no case considered as "favorable" from a clinical standpoint did the so-called urochromogen reaction appear in the urine. In seven of 14 cases (50%)

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No. Cases	Occupation	Duration (years)	Mod. } INVOLUT. Advan. }	Age	Nourishment	Mucous Membranes	Temp. (4 P.M.)	Cough	Sputum	Complications	Prognosis Clinical	Km O4	Diazo	Living	Dead
1	Laborer	2 1/2	#	0	Poor	Pale	99-4	#	#	0	Unfavorable	#	0	#	#
2	Laborer	1 1/2	#	0	"	"	99-5	#	#	0	"	#	#	#	#
3	Laborer	3	#	0	"	"	100	#	#	Larynx	"	#	#	#	#
4	Laborer	2	#	0	Fair	"	97	0	#	0	"	#	#	#	#
5	Laborer	3/4	#	0	Poor	"	99-4	#	#	0	"	#	#	#	#
6	Painter	1/2	#	0	"	"	102	#	#	0	"	#	#	#	#
7	Laborer	7	#	0	"	"	98-2	#	#	0	"	#	#	#	#
8	Laborer	2	#	0	Fair	"	99-2	0	#	TBC Kidney	"	#	#	#	#
9	Clerk	1 1/2	#	0	Fair	"	99	#	#	0	Favorable	#	#	#	#
10	Laborer	5	#	0	"	"	99-2	#	#	0	"	#	#	#	#
11	Laborer	3	#	0	"	"	98	#	#	0	"	#	#	#	#
12	Laborer	7	#	0	Poor	Pale	99-2	#	0	Larynx	Unfavorable	#	#	#	#
13	Laborer	2	#	0	"	"	98	#	#	0	"	#	#	#	#
14	Laborer	1 1/2	#	0	"	"	99	#	0	0	"	#	#	#	#
15	Laborer	1	#	0	"	"	100	#	#	0	Favorable	#	#	#	#
16	Clerk	2	#	0	Fair	Fair	99-4	#	#	0	Unfavorable	#	#	#	#
17	Laborer	8	#	0	Poor	Pale	98	#	#	0	"	#	#	#	#
18	Clerk	1	#	0	"	"	97	#	#	0	"	#	#	#	#
19	Laborer	2	#	0	"	"	103	#	#	Tuberc Dorsalis	"	#	#	#	#
20	Laborer	1	#	0	"	"	101	#	#	0	"	#	#	#	#
21	Laborer	1 1/2	#	0	"	"	99	#	#	Aortic Stenosis	"	#	#	#	#
22	Laborer	1/2	#	0	Fair	Fair	98	0	0	0	Favorable	#	#	#	#
23	Housewife	2	#	0	"	"	98-4	#	#	0	"	#	#	#	#
24	Laborer	3	#	0	"	"	99	0	#	0	"	#	#	#	#
25	Laborer	3	#	0	Poor	Pale	102	#	0	Pneumonia	Unfavorable	#	#	#	#
26	Laborer	2	#	0	"	Fair	97	#	0	0	Favorable	#	#	#	#
27	Miner	5	#	0	"	Pale	100	#	0	Pneumonia	Unfavorable	#	#	#	#
28	Engineer	3	#	0	Fair	Fair	97	0	#	Aneurism	"	#	#	#	#
29	Laborer	20	#	0	Poor	Pale	102	#	#	"	"	#	#	#	#
30	Laborer	3	#	0	"	"	100	#	0	Larynx	"	#	#	#	#
31	Laborer	1/3	#	0	"	"	100	#	#	0	"	#	#	#	#
32	Laborer	1/2	#	0	"	"	98	#	0	0	"	#	#	#	#
33	Carpenter	3/4	#	0	Fair	Fair	97	0	0	0	Favorable	#	#	#	#
34	Cook	1	#	0	Poor	Pale	102	#	#	0	Unfavorable	#	#	#	#
35	Waiter	2	#	0	"	"	103	#	0	0	"	#	#	#	#
36	Laborer	1	#	0	Fair	Fair	99-2	0	0	Larynx	"	#	#	#	#
37	Laborer	1/2	#	0	Poor	Pale	99-4	#	0	Pott's Disease	"	#	#	#	#
38	Laborer	1/2	#	0	Fair	Fair	98	#	0	0	Favorable	#	#	#	#
39	Laborer	2	#	0	Poor	Pale	99	#	0	0	Unfavorable	#	#	#	#
40	Laborer	1	#	0	"	"	100	#	0	Larynx	"	#	#	#	#
41	Laborer	3	#	0	Poor	Pale	104	#	#	0	Unfavorable	#	#	#	#
42	"	5	#	0	"	"	99	#	#	0	"	#	#	#	#
43	"	6	#	0	Fair	"	97-4	#	0	0	Favorable	#	#	#	#
44	"	2	#	0	Poor	"	100-6	#	0	0	Unfavorable	#	#	#	#
45	"	3	#	0	Fair	Fair	102	0	#	Enteritis	"	#	#	#	#
46	"	10	#	0	Poor	Pale	99-2	0	#	Larynx	"	#	#	#	#
47	Painter	1	#	0	"	"	101-4	0	#	Pleurisy	"	#	#	#	#
48	Laborer	3	#	0	"	"	98	0	#	0	"	#	#	#	#
49	"	1	#	0	"	"	102	#	0	Peritonitis	"	#	#	#	#
50	"	1/2	#	0	"	"	97-6	#	0	0	Favorable	#	#	#	#
51	"	1/2	#	0	"	"	98	#	0	0	Unfavorable	#	#	#	#
52	"	2	#	0	"	"	103	0	0	Hydro-Pneumonia	"	#	#	#	#
53	"	1/2	#	0	Fair	Fair	99-4	#	0	Larynx	"	#	#	#	#
54	"	1	#	0	Poor	Pale	101	#	#	0	"	#	#	#	#
55	"	1/2	#	0	"	"	99	#	0	0	"	#	#	#	#
56	"	3	#	0	"	"	102	#	0	0	"	#	#	#	#
57	"	2 1/2	#	0	"	"	97-6	#	0	0	"	#	#	#	#
58	"	3	#	0	"	"	99	#	#	Bronchitis	"	#	#	#	#
59	"	1	#	0	"	"	101	#	#	Pneumonia	"	#	#	#	#
60	"	3	#	0	"	"	98-4	#	0	0	"	#	#	#	#
61	"	3	#	0	"	"	99-5	#	0	0	"	#	#	#	#
62	"	4	#	0	Fair	Fair	97-4	#	0	0	"	#	#	#	#
63	"	1/2	#	0	Poor	Pale	99-6	#	#	0	"	#	#	#	#
64	"	8	#	0	"	"	98-8	0	#	0	"	#	#	#	#
65	"	3	#	0	"	"	99	#	#	0	"	#	#	#	#
66	Housewife	2	#	0	"	"	99-4	#	#	Pleurisy	"	#	#	#	#
67	"	2	#	0	"	"	98	#	#	Larynx	"	#	#	#	#
68	"	3	#	0	Fair	Fair	97	#	0	0	"	#	#	#	#
69	Laborer	1/2	#	0	"	"	98-8	0	0	0	Favorable	#	#	#	#
70	"	1	#	0	"	Pale	99-2	#	#	0	Unfavorable	#	#	#	#
71	"	3	#	0	Poor	"	97-4	#	#	0	"	#	#	#	#
72	"	3	#	0	"	"	99-4	#	0	0	"	#	#	#	#
73	"	1	#	0	"	"	98-6	0	0	0	"	#	#	#	#
74	"	2	#	0	"	"	101	#	0	0	"	#	#	#	#
75	"	1/2	#	0	"	"	99-2	#	0	0	"	#	#	#	#
76	"	1	#	0	"	"	97-4	#	#	0	"	#	#	#	#
77	"	2	#	0	Fair	Fair	99	0	0	0	"	#	#	#	#
78	"	1/2	#	0	Poor	Pale	100	#	0	0	"	#	#	#	#
79	"	1	#	0	"	"	97	#	0	0	"	#	#	#	#
80	"	4	#	0	"	"	102	0	#	0	"	#	#	#	#
81	"	5	#	0	"	"	99-2	#	#	0	"	#	#	#	#
82	"	1 1/2	#	0	Fair	Pale	98	#	0	0	"	#	#	#	#
83	"	1/2	#	0	"	"	97-8	#	0	0	"	#	#	#	#
84	"	2	#	0	Poor	"	99-2	#	#	0	"	#	#	#	#
85	"	4	#	0	"	"	100	#	0	0	"	#	#	#	#

No. Cases	Occupation	Duration (years)	Med. } INVOLUT.	Advan.	Appetite	Nourishment	Mucous Membranes	Temp. (4 P.M.)	Cough	Sputum	Complications	Prognosis	Klin O4	Diazo	Live	Dead
86	Laborer	2/3	#	#	0	Poor	Pale	99	#	#	Larynx	Unfavorable	#	#	#	
87	Cook	2	#	#	0	..	..	101	#	#	0	..	#	#	#	
88	Laborer	3/4	#	#	0	..	..	102	#	0	0	..	#	#	#	
89	"	3	#	#	0	..	..	98	#	0	0	..	#	#	#	
90	"	1	#	#	0	..	..	97	#	0	0	Bronchial Asthma	#	0	#	
91	Waiter	1/2	#	#	0	..	Fair	92-2	0	0	0	..	0	0	#	
92	Laborer	1 1/2	#	#	0	..	Pale	97-6	#	#	0	..	0	0	#	
93	"	1/2	#	#	0	..	..	98-8	0	0	0	..	0	0	#	
94	"	4	#	#	0	Fair	Fair	99	#	#	Larynx	..	0	0	#	
95	"	2	#	#	0	Poor	Pale	99-6	#	#	0	..	0	0	#	
96	Cook	1 1/2	#	#	0	..	..	98-4	#	0	0	..	0	0	#	
97	Laborer	1	#	#	0	..	..	97-4	#	0	0	Peritonitis	..	0	#	
98	"	1/2	#	#	0	..	Fair	98	#	0	0	..	0	0	#	
99	"	5/4	#	#	0	..	..	99-2	0	#	0	..	0	0	#	
100	"	2	#	#	0	..	Pale	97-4	#	#	Nephritis	..	0	0	#	

clinically considered "favorable" a positive diazo reaction was obtained. In 39 of 86 (45%) clinically unfavorable cases the urochromogen test was positive while in 53 (61%) the diazo test was positive. Seventeen of 100 patients died in six months. Of these 17, 11 (65%) showed a positive urochromogen, and 13 (76%) a positive diazo while 10 (59%) showed both. Of 17 patients showing a positive urochromogen test with a negative diazo (a combination considered especially ill-omened by Weiss) none have died to date. Of 39 patients having a negative urochromogen and a positive diazo, five have died. The results are more compactly shown in the accompanying table.

CONCLUSIONS.

(1) The urochromogen and diazo reactions appear in the urine of a majority of patients in a late stage of pulmonary tuberculosis.

(2) They do not appear until long after a correctly unfavorable prognosis is possible by a careful clinical examination.

References.

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2. Hefebower. Am. Journ. Med. Sc., 1912, p. 221.
3. Schaffle. Journ. Am. Med. Ass'n., Oct. 10, 1914, p. 1294.

CONTRIBUTION TO INFECTION; ITS PREVENTION AND TREATMENT. RESULTS IN 500 TRAUMATIC CASES.

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To prevent and cure infection, its habits should be observed, recorded and studied. In studying the records of my last 500 traumatic cases I observed that the first habit of infection was to cause tenderness and congestion.

In some of the leading text-books on surgery the term inflammation is used almost synonymously at times with infection. There is a fine distinction between the two. As a general rule both are caused by protein substances. In infection, however, there is the presence of prosperously growing microorganisms at the site of the lesion, but in inflammation there may or may not be microorganisms present in the lesion. Inflammation frequent-

ly follows where tissues have had their resistance lowered by fatigue, trauma or chemical action.

For example, there were 50 cases of joint injury without open wounds. There was no case of infection, although some of the patients who had neglected their sprains and contusions of joints developed refractory inflammation. Also in eight cases of new work myositis and tenosynovitis of the forearm from fatigue, there was no case of infection.

In 400¹ cases of open wounds it was found to be a simple matter to prevent infection when the patient was given treatment early. Early means within six hours for lacerated wounds and within three hours for puncture wounds. Twenty-eight per cent. of the 400 cases showed evidences of infection when they first came under treatment. Of the remaining 284, primary infection developed in less than one per cent. Less than one per cent. developed secondary infection following the patient's interference with the dressing or wound, such as the removing of the stitches by himself.

Although iodine is the best universal preventive of infection in wounds, I have found that it delays healing somewhat, that its effect is too transitory and that it causes extreme sensory nerve stimulation. Compared with certain silver preparations, in cases of equal magnitude, for instance, when fresh 50 per cent. argyrol was applied at the time of first aid, the results were much in favor of the latter preparation. With argyrol the period of treatment was 30 per cent. less than with iodine; the application was painless and the argyrol remained at the site of the wound for about 24 hours.

If wounds contain foreign material they should be treated as if infected from the start.

In 75 cases of puncture wound 23 per cent. were already infected when first coming under treatment. First treatment had been delayed for an average period of five days. In order to prevent infection it was necessary to inject tincture of iodine under pressure. This was accomplished